## ENVIRONMENTAL ASSESSMENT for

# FORT STANTON WATERSHED IMPROVEMENT PROJECT

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U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT ROSWELL FIELD OFFICE ROSWELL, NEW MEXICO

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### I. BACKGROUND

### A. INTRODUCTION

The Fort Stanton Watershed Improvement Project is located within the Fort Stanton Area of Critical Environmental Concern (ACEC) in Lincoln County, New Mexico. The project includes the entire ACEC with six areas prioritized for fuels reduction; Upper Rio Bonito, South Mesa, West Mesa Bench, West Spur, the Dairy Pasture, and Cemetery Pasture. The ACEC is approximately 24,000 acres in size and is managed solely by the Bureau of Land Management (BLM). Adjacent ownership includes State of New Mexico, private lands, and U. S. Forest Service (USFS). (See Appendix G, Maps.)

### B. PURPOSE AND NEED FOR THE PROPOSED ACTION

The opportunity to improve ecological conditions combined with the presence of dangerous levels of natural fuels in the ACEC indicate the need to change current densities and types of vegetation present. The amount and arrangement of vegetation present are such that should an ignition occur, catastrophic fire and associated loss of property are some possibilities. Exotic, invader, and introduced plant species have become major components of the plant community leaving native species at a competitive disadvantage. Nutrients and available water are tied up in decadent plant material.

The general goal of the proposed action is to reduce the amount of vegetation available to a wildfire, decrease the risk of loss of adjacent property, and improve watershed condition. Other general goals are to increase health, vigor, and competitive ability of the native plant community; reduce the density of exotic, invader, and introduced species; improve wildlife habitats; contribute to the available nutrient and water cycles by decreasing the amount of vegetation; and to begin restoring the viewshed to a more open condition.

### C. CONFORMANCE WITH LAND USE PLANNING

The proposed action conforms with the Roswell Approved Resource Management Plan (RMP) and Record of Decision (BLM 1997) as required by 43 Code of Federal Regulations (CFR) 1610.5-3. Specifically, the proposed action conforms with the Vegetation Management and Watershed Management sections of the RMP.

The proposed action conforms with and is supported by the Roswell Field Office Fire Management Plan (FMP, 1998). Supporting statements are included in the section addressing the Fort Stanton/Rio Bonito area: "Prescribed burning should be a part of the management direction for this area to reduce the potential for a catastrophic fire escaping the boundary onto private property." Also stated in the Fire Management Plan, under Preliminary Fire Management Strategies: "Projects will be proposed annually with an emphasis on utilizing prescribed fire to achieve specific resource management goals. These goals will include restoring fire as an ecological process; eradication or control of nonnative, invasive plant species; restoring or maintaining wildlife habitats; range improvement and reduction of the build-

up of hazardous fuels."

### D. RELATIONSHIPS TO STATUTES, REGULATIONS, OR OTHER PLANS

The proposed action and alternatives are consistent with the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1700 et seq.); the Clean Water Act (33 U.S.C. 1251 et seq.), as amended; the Endangered Species Act (16 U.S.C. 1535 et seq.) as amended; the Public Rangelands Improvement Act of 1978 (43 U.S.C. 1901 et seq.); Executive Order 11988, Floodplain Management; Executive Order 11990, Protection of Wetlands; and Executive Order 13112, Invasive Species. The proposed action and alternatives are also consistent with the United States Department of the Interior, Bureau of Land Management Record of Decision, Vegetation Treatment on BLM Lands in Thirteen Western States, New Mexico & Oklahoma (July 1991).

### E. SCOPING, CONSULTATION, AND COORDINATION

The proposed action is a result of discussions among the staff of the BLM Roswell Field Office and public meetings between the Roswell Field Office, residents of the surrounding area, representatives of the State of New Mexico, representatives of the Lincoln County Board of Commissioners, and other interested parties. These discussions began on May 18, 1999, and continued through 2000 during the development of the Fort Stanton ACEC activity plan. Consultation and cooperation between the Roswell Field Office and the aforementioned parties will continue as an integral part of the project.

### II. PROPOSED ACTION AND ALTERNATIVES

### A. PROPOSED ACTION

The invasion and encroachment of juniper species into what had historically been open grasslands have had a negative impact on the watersheds of the ACEC. Therefore, BLM, in cooperation with Lincoln County, interested members of the public, and the residents of the surrounding area, is proposing vegetative manipulation through a combination of mechanical treatments, herbicidal treatments, and prescribed fire within the ACEC. The proposed action would be implemented upon approval of this environmental assessment and dependent on availability of funding, personnel, prescription specifications, and environmental conditions.

### Objectives of the Proposed Action

1) Reduce the density of juniper in areas presently exceeding the threshold of 50 trees per acre established in the Roswell RMP. Fifty trees per acre are spaced approximately 30 feet between stems. Treatment would result in trees spaced approximately 100 feet apart or four trees per acre. In selected grassland bottoms and mesa tops, all junipers would be removed. On the uplands the priority species to leave after treatment would be pinyon pine and alligator-bark juniper. In the lowlands the species to be left would be pinyon pine, ponderosa pine, box elder, and walnut. Species

associated with riparian areas such as cottonwood and willow would remain after treatment.

- 2) Reduce the present density of saltcedar and other noxious, nonnative plant species to a level so that native species can be reestablished and/or compete with these invasive species.
- 3) Monitor the results of objectives 1-2 and provide information from which future management actions can be developed. Indicators that progress is being made are:
  - •The native plant community is being restored
  - •There is an increase availability of water and nutrients
- •There are increases in the retention of water in the soil, groundwater recharge, and the Rio Bonito stream flow
  - A reduction in the numbers of undesirable plant species present
  - Habitat diversity and vigor of plants are increasing
  - •Fuel loadings are reduced

Best Management Practices (BMPs) common to each treatment type in the project area would include:

- To prevent rutting, soil compaction, and damage to ground cover vegetation, vehicles would not be allowed off road when soil moisture is high.
- Vehicles would not be allowed in wetland areas or the riparian area of the Rio Bonito.
- To prevent irreversible soil losses and difficulty in revegetating sites, vehicle traffic and tree cutting would not be allowed on steep slopes or fragile areas. A slope greater than 30 percent would generally be regarded as the threshold for this BMP, but flatter slopes might be excluded in some cases. Fragile areas may be identified by thin or highly erodible soils, and areas that would be difficult to revegetate due to poor site conditions associated with soil characteristics, aspect, exposure, and other factors.
- Seeding would be considered if natural revegetation of ground cover species does not occur rapidly enough to protect an area from erosion.
  - All project areas would be monitored to determine the effectiveness of treatment.
- Pole planting along the Rio Bonito and Salado Creek (willows and cottonwoods) would occur where feasible.

Treatment options of this proposed action would fall under one or more of the following categories.

<u>Mechanical</u>: Saltcedar and juniper would be removed using a combination of chainsaws and mechanical methods such as rubber-tired or rubber-tracked harvesters, rubber-tired tractors, or track mounted equipment, cutting as close to the ground as possible. Cultural clearances and surveys would be required before allowing treatments that result in ground disturbance.

Best management practices (BMP's) for mechanical treatments in the project area would include:

• Useable wood would be made available for firewood, fence posts or other uses.

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Options for disposal of unuseable slash include piling for wildlife habitats, piling to be burned at a later time; scattered for later broadcast burning; or chipping. In some situations, debris would be placed in gullies or arroyos to reduce soil erosion.

- Fuelwood and other usable material would be yarded in a location that minimizes off-road vehicle traffic and avoids sensitive areas.
- Slash that is chipped would be scattered to prevent localized impacts such as inhibiting the growth of ground cover species.
- No slash piles would be constructed in the floodplain to avoid the slash being transported by flood waters.
- Only chainsaws would be used in the riparian zone. In the uplands other mechanical treatment options such as those listed above may be suitable to thin or remove high concentrations of juniper.
- Tree materials and stumps would be chipped, burned or removed from the viewshed within one growing season to lessen the visual impacts to the area.
- Juniper trees removed from the valley floor and bench lands would be accomplished selectively. Pinyon and juniper (P/J) would be thinned but individual trees would remain to allow a pleasing aspect to the view shed. The resulting treatment would result in a mosaic of P/J interspersed within the valley.

<u>Herbicidal:</u> The application of an approved herbicide would be used to treat stumps of saltcedar and juniper. Approved herbicides would be considered for use for the treatment of other invasive weed species identified during the project. Applications of herbicide would be ground based.

BMPs for herbicide applications in the project area would include:

- All chemical treatments would be in compliance with the herbicide labels, Appendix 9 of the Roswell RMP ("Treating Vegetation with Herbicides"), and the BLM Vegetation Treatment Environmental Impact Statement, 1991. The compliance requirements in these documents comprise the BMPs for herbicide applications.
  - Herbicides would be applied to individual trees.
- Broad-based application would be reserved for lands within the ACEC that do not have scenic appeal or high recreational uses.

### Prescribed Fire:

Prescribed fire would be used as a tool to reduce the high level of plant material and improve the function of the watersheds within the ACEC. All prescribed fire activities would be conducted under the parameters of an approved burn plan prepared by the Roswell Field Office of BLM. In some situations control lines would be placed around individual trees and snags that are to remain in the within the valley floor and the bench lands.

BMPs for managing or reducing smoke in the project area would include:

• All tree stems and large limb wood would be removed from the site and made available as firewood. Since smoke emissions from larger size fuel emits smoke for long periods of time, the

preference is not to burn this size class fuel and to remove them in other ways. The remaining smaller branch wood and greenery would be piled for burning during optimal burning conditions or chipped.

- All piles to be burned would be "chunked" or stoked to ensure complete consumption. All piles would be kept small.
- The burn prescription would be developed to incorporate wind directions from up canyon (westerly winds) which would push smoke down canyon to the east and northeast, the predominate wind direction.
- A press release and information flyers would be released at least one week prior to any anticipated burning. Any residents within 1/4 mile of the project site would be notified by a BLM employee. Signs would be posted the days that burning is being done on the project site.
- All prescriptions would be developed with an objective to reduce the amount of smoke emissions in the project area. Other BMP's would include;
  - Burn fuels when they are cured and dried out.
  - Use ignition techniques and methods that would consume fuels quickly.
- Utilize optimum weather conditions and low fuel moisture reading which would allow for the quick and complete consumption of the fuel.

Burn Plans written to manage the use of prescribed fire would incorporate these BMP's in order to mitigate the negative effects of smoke of local residents and visitors to the area. Any permit restrictions and smoke compliance plan for the New Mexico Air Quality Bureau would be followed.

### B. NO ACTION ALTERNATIVE

Under the No Action alternative, no treatment of any kind would occur.

## C. ALTERNATIVES CONSIDERED BUT DROPPED FROM FURTHER CONSIDERATION

**Broad Application Chemical Treatment Only**-dropped from further consideration because herbicide use alone would increase the amount of dead plant material available to fire should an ignition occur (increased fuel loading).

### III. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

The following critical elements of the human environment have been considered but are not affected or impacted by the proposed actions: Hazardous Waste, Wild/Scenic Rivers, Wilderness, Prime/Unique Farmlands, Native American Religious Concerns, Socio/Economics, Low Income and Minority Populations, and Environmental Justice.

### **GENERAL SETTING**

Historically, the ACEC was the military reservation surrounding the fort, which was established in 1855. When the fort was closed in 1895, control of the reservation remained with the federal government. BLM acquired management of reservation in 1967. New Mexico State University and BLM signed a 20-year cooperative use agreement in 1970 for used of the

reservation. NMSU used the area as a range and wildlife research station The 1997 Roswell Resource Management Plan established the area as an area of critical environmental concern (ACEC).

The ACEC surrounds historic Fort Stanton which is managed by the State of New Mexico. The Sierra Blanca Regional Airport is located on Fort Stanton Mesa in the southern portion of the ACEC.

Topography: The topography if the ACEC is highly variable, with rolling hills, wide flat-topped mesas and narrow, rocky canyons and ridges. It is situated in the foothills of the Sierra Blanca and Capitan Mountains. Elevation above sea level ranges from 6,000 feet in the east to 7,020 feet in the west. The drainages in the south portion of the ACEC are in a southeasterly direction. The runoff from these drainages flows into Little Eagle Creek and eventually into the Rio Ruidoso. Runoff from other drainages in the northern portion of the ACEC flows into the Rio Bonito, and Salado Creek which eventually joins the Rio Bonito.

Climate: The climate is semi-arid with normal monthly temperatures ranging from 35°F in January to 70°F in July at Fort Stanton (Kunkel, 1984). Observed minimum and maximum temperatures were -28°F and 101°F, respectively. Average annual precipitation is 13.9 inches with average annual snowfall of 20 inches. Annual precipitation has ranged from 6.1 inches to 25.6 inches, and snowfall has been as high as 64 inches (Kunkel, 1984).

Vegetation: Grasslands, pinyon-juniper (PJ) and riparian are the major vegetation communities in the ACEC. PJ dominates the landscape of the ACEC, primarily as the result of wildfire suppression. About 13,000 acres of PJ is growing in homogenous stands. PJ prevails in many areas that could support more of a grassland aspect, such as the low hills, draws and drainages.

The grassland vegetation type, found on less hilly sites and mesas, is dominated by blue grama. A typical blue grama community is composed of blue grama, hairy grama, sideoats grama, cane bluestem and western wheatgrass, with sagewort and verbena as common forb species. The muhly-blue grama community is dominated by creeping muhly, blue grama, verbena, scarlet globemallow, and broom snakeweed. A third community within the grassland vegetation type is characterized by walking stick cholla, blue grama, verbena, and, invading one-seed juniper.

The pinyon-juniper vegetation type is characterized by pinyon pine, alligator juniper, one-seed juniper and wavyleaf oak. It should be noted that the dominant tree species in the "PJ" type is one-seed juniper, pinyon pine and alligator juniper are not as an aggressive invading species, and in most areas are low in density. These trees and shrubs are dominant in the communities of the lower slopes. Blue grama, New Mexico muhly, pinyon ricegrass, sideoats grama, Plains lovegrass, and wolftail are the typical understory of grasses.

Within the brush on the upper slopes, however, pinyon and juniper are less predominant and scattered with the woody species wavyleaf oak and skunkbush sumac. The understory of this community is typically forbs, commonly western yarrow, coast wallflower, purple geranium, and the half-shrub tasselflower brickellia.

Riparian areas constitute only about three percent of the ACEC (about 660 acres). The riparian areas are found along the Rio Bonito and Salado Creek, several springs/seeps, and a small wetland area behind Salado Dam.

The majority of the riparian vegetation type occurs along two waterways, the Rio Bonito and Salado Creek. Woody plants of the Rio Bonito community are coyote willow, peachleaf willow, narrowleaf cottonwood, lanceleaf cottonwood, Arizona walnut, boxelder, Russian olive and saltcedar. Kentucky bluegrass, bentgrass, bulrush, cattail, inland rush, gaura, summercypress, horseweed, poison hemlock, and stickseed are the typical wetland grasses and forbs.

Fuels/Fire History: The primary fuel (carrier of the fire) in the riparian zone is mixed grasses. Predicted fire behavior would be characterized by rapid, intense fire spread. Numerous trees, such as saltcedar, cottonwoods and willows are found along the stream courses. Both one-seed juniper, alligator juniper and Russian olive are found in the riparian zone. Short, scattered independent torching and crowning of these trees would be expected under certain weather conditions. Because of shading of the fuel bed and higher humidity along the stream course, it would be anticipated that fire behavior would be a concern only under extreme weather conditions. Fire behavior away from the creek bed would increase as the lower humidity and a more open canopy of trees would allow fire weather conditions to exhibit more influence on the fire. Estimates of flame lengths burning in sacaton, under dry and windy conditions, range from 10-14 feet. This would make direct fire suppression efforts ineffective and a safety concern for firefighters.

On the terraces above the riparian area species of tall grasses are numerous and would exhibit rapid, intense fire behavior. Under windy conditions, this fuel model would produce high rates of spread and long flame lengths. There are numerous mature juniper trees that stand 20-30 feet tall. Many of the juniper trees have interlocking crowns, a major contributor to fire spread in the crown of trees. These junipers mixed in with the tall grasses of this zone represent a major concern in fire suppression. The potential for torching and crowning in these juniper trees would be high. As these trees torch, fire behavior would be characterized by long range spotting (up to 1/4 mile). This long range spotting would increase the threat of property damage to surrounding private lands.

The uplands in the ACEC are characterized by short grasses and are the primary carrier of any fire in this zone. On the hillsides, poor, shallow soils create a fuel bed that is broken up by rocky soils and some barren ground. Some pinyon-juniper is mixed with some small brush species and desert succulents in this zone. Under windy conditions, fires would continue their rapid fire behavior. Fire behavior would be influenced heavily by weather and topography more than fuels within this zone.

Lands/Realty/ROW: New Mexico Highway 220 connects U.S, Highway 380 with Alto, New Mexico via Fort Stanton and the airport. Lincoln County Road 007 junctions with NM 220 east of the airport and connects with U.S. Highway 70 to the south. Roads through the ACEC provide access for the public and administrative use of the area. The water line serving the state land (including historic Fort Stanton) is south of the Rio Bonito running from the west boundary of the ACEC to the fort. Power lines in utility corridors supply electricity to the fort and airport.

Minerals: The Proposed Action will not affect BLM's management of minerals in the ACEC.

### DESCRIPTION OF THE AFFECTED ENVIRONMENT

Air Quality: The ACEC is surrounded by U. S. Forest Service lands, State Lands and private property. The Capitan Wilderness is located approximately nine miles northeast of the ACEC and the White Mountain Wilderness is located approximately eight miles west of the ACEC. Both are classified as a Class I airsheds. The Wilderness Act, Public Law 88-577, provides for the preservation of the pristine scene, meaning, any significant amounts of smoke from a prescribed fire may impact the scenic values of this area. Additionally, Sierra Blanca Regional Airport is in the southern portion of the ACEC. Prescribed fire projects associated with the Proposed Action would generate smoke emissions.

Environmental Impacts: Burning under poor smoke dispersal conditions may impact visitors, motorists in the area, and aircraft flights into and out of Sierra Blanca Regional Airport.. Potential impacts of smoke could have serious consequences on motorists traveling on the highways as accidents, injuries and fatalities have occurred when smoke from prescribed burns have settled on roads and highways. Smoke impacts could also be serious on local residents such as the elderly, people with asthma and other upper respiratory ailments.

Under the Proposed Action and using the BMPs for prescribed fire, the impacts of smoke visitors, residents of private property surrounding the ACEC, the Capitan Wilderness and White Mountain Areas, and aircraft flights would be short term. Standard operating procedures for smoke management and BLM prescribed fire burn plans would reduce impacts to aircraft flights by burning under wind directions in which smoke is dispersed away from the airport.

Smoke from pile burning would impact air quality in the immediate area for up to 72 hours. By removing the tree boles and large limbs from any piles, the burnout time would be reduced to about one hour. This practice would also reduce possible impacts to motorists and aircraft flights. Using smoke emission models, the total suspended particulate was reduced from 1.67 tons (with large boles and branch wood) to .41 tons with that material removed.

Burning grasses and small limb wood can have a immediate, but short term impact on air quality in the immediate area. The burn out time for grasses and branch wood is usually less than 60 minutes. Residual burning of this size of fuel will be much short than the large boles and limb wood. Therefore, the size of the fuel being burned has a causative affect on the duration of the air quality impacts. The smaller the fuel being burned, the shorter the smoke impact would be.

The No Action alternative would avoid all impacts to air quality. Under current fuel levels, however, a catastrophic wildfire in the project area would result in heavy smoke production and a prolonged impact to the surrounding residents, the Capitan and White Mountain Wilderness Areas, and aircraft flights.

Water Quality: The proposed treatment areas are in the upper Rio Hondo drainage basin, which consists of the Rio Bonito and Rio Ruidoso watersheds. The two streams come together to form the Rio Hondo at the town of Hondo approximately 11 miles southeast of Fort Stanton. Except for South Mesa, all treatment areas lie within the Rio Bonito watershed. The Rio Bonito flows for approximately nine miles through Fort Stanton, including 3.3 miles through the Upper

Rio Bonito treatment area. The South Mesa area drains to Little Creek, which eventually reaches the Rio Ruidoso at the mouth of Devil's Canyon below Glencoe.

The New Mexico Water Quality Control Commission (WQCC) has been delegated authority to designate uses and establish water quality standards for waters of the state. The WQCC (2000a) has identified perennial reaches of the Bonito below Angus, and the Rio Ruidoso below the U.S. 70 bridge near Seeping Springs Lakes as parts of Segment 2208. Designated uses for Segment 2208 include fish culture, irrigation, livestock watering, wildlife habitat, a coldwater fishery, and secondary contact (e.g., wading).

The WQCC (2000a) has also established water quality standards to protect the designated uses, and directs periodic water quality assessments to ensure that standards are met. According to the WQCC (2000b), the coldwater fishery and irrigation use are not supported on the Bonito due to stream bottom deposits (i.e., sediment). The probable sources of sediment listed were agriculture, removal of riparian vegetation, streambank modification/destabilization, and other unknown sources.

Environmental Impacts: The Proposed Action would improve water quality from current conditions and would help support the designated stream uses over time. Removing brush, such as saltcedar and juniper in the Upper Rio Bonito treatment area, would increase herbaceous ground cover, thus allowing more sediment to be filtered out of overland flow before it reaches the stream. Ground cover would also increase in the uplands where brush species are removed. Increased ground cover would enhance infiltration, thus increasing ground-water recharge and stream base flows. Water quality would improve by reducing erosion rates and simply by having more water instream. The cumulative benefits provided under the Proposed Action could be significant when coupled with other BLM projects and similar efforts on Lincoln National Forest, state, and private lands.

Minor, adverse impacts to surface water quality could occur for a short period during and after project implementation, though these impacts would be minimized by use of the BMPs described in the Proposed Action. Soils would be disturbed as vehicles are driven in the treatment areas, and would be prone to erosion prior to regrowth of ground cover species. The soil disturbance could result in a small amount of sediment loading to streams, though rapid regrowth of ground cover species would quickly offset these effects. No impacts to water quality would be expected from the small amount of proposed herbicide use.

No ground-water impacts would be expected under any Alternative. Neither the long-term benefits nor the short-term impacts expected under the Proposed Action would be realized under the No-Action Alternative.

Soils: The *Soil Survey of Lincoln County Area, New Mexico (USDA Soil Conservation Service, 1983)* was used to describe and analyze impacts to soils. Soils in the treatment area can be grouped into three general categories.

Valley Bottoms. Cumulic Haplustolls are found in the Rio Bonito valley. Manzano loam is found on low terraces above the river bottom and in draws in Cemetery Pasture. These soils are derived form alluvium and are deep and well-drained. Surface textures range from loam to

gravelly sandy loam. Permeability is typically slow and runoff is moderate. The hazards of water and wind erosion are moderate.

Uplands on the East Side. Deacon loam and Tortugas-Rock outcrop association are found on uplands, breaks, and ridges in Cemetery Pasture and the east side of South Mesa. The Deacon loam and Tortugas soil are derived from alluvium and limestone, respectively. The surface texture of the Tortugas soil is very cobbly loam. The Deacon loam is deep, but the Tortugas soil is shallow. Both are well-drained and have moderate permeability. The runoff is moderate for the Deacon loam, but is rapid for the Tortugas soil. Therefore, the water erosion hazard is high for the Tortugas soil and moderate for the loam. The wind erosion hazard is high on the loam, but only slight on the Tortugas soil.

Uplands on the West Side. Uplands, valley sides, swales, and ridges on the west Spur, West Mesa Bench, South west side of South mesa, and the Dairy pasture are represented by Hightower-Oro Grande complex, Pena-Dioxice complex, Remunda clay loam, and Romine extremely gravelly loam. Oro Grande very cobbly clay loam is also found in Dairy Pasture. Most of the soils are derived from alluvium, though residuum, andesite, sandstone and igneous rock are also sources. They are generally well-drained and range in depth from very shallow to very deep. Permeability is typically moderate, and runoff medium to rapid. The hazard of water erosion can be moderate to high, and wind erosion can be slight to moderate.

Environmental Impacts: A variety of treatments are possible under the Proposed Action, and specific impacts would depend on the methods used. If mechanical methods are used, the soil surface would generally be disturbed by vehicle traffic, and trees and slash being dragged along the ground. Adverse soil impacts in riparian areas would be minimized because brush would be removed manually with chainsaws.

Herbicide and prescribed fire treatments could also lead to minor surface disturbances if vehicles are used. Killing vegetation would temporarily expose the soil surface to erosive forces even if the targets are invasive, nonnative, or noxious species.

Any expected adverse impacts would be minor, short-term effects because areas would vegetate quickly following treatment. Removing brush that can out compete ground cover species will result in soils that are more stable and fertile in the long term.

Under the No-Action Alternative, the short-term risks of accelerated erosion would not occur, however, the expected long-term benefits would also not be realized. The potential for high-intensity catastrophic wildfire would also be much higher. Wildfire can severely affect soils by removing cover and making them nonwettable. The risks of heavy soil losses and secondary impacts, such as sediment loading to streams are also much higher.

Floodplains: The Upper Rio Bonito treatment area includes about 3.3 miles of the stream and its associated floodplain and terraces. The floodplain has been changed from prehistoric conditions by construction of Bonito Dam, grazing, upstream development, road construction, alteration of the stream channel, and brush encroachment.

For BLM administrative purposes, the 100-year floodplain provides the basis for floodplain

management on public lands. It is based on maps prepared by the Federal Emergency Management Agency (1983). The 100-year floodplain ranges in width from about 200 feet to 500 feet in the treatment area, and includes approximately 100 acres in the Upper Rio Bonito treatment area.

Environmental Impacts: The Proposed Action would improve floodplain functions, and benefit the stream corridor overall. Removing brush, such as saltcedar and juniper, would increase herbaceous ground cover, thus enhancing infiltration rates and ground-water recharge in the floodplain. This would reduce flood peaks and enhance stream base flows, thus increasing the amount of water available for resource needs and other uses. Increased herbaceous ground cover would also filter sediment from overland flow before it reaches the stream, thereby protecting water quality. There would be a small amount disturbance associated with the project, but it would be limited by restricting vehicle traffic in the floodplain, and using hand crews with chain saws for mechanical treatments. None of the benefits provided by the Proposed Action would be realized under the No-Action Alternative.

Non-native, Invasive Species: Under Executive Order 13112 (EO), Invasive Species, BLM is to prevent the introduction of invasive species; and control populations of these species in a cost-effective and environmentally sound manner. The Noxious Weed Management Act of 1998 for the State of New Mexico also defines three classes of these weeds.

"Class A" weeds are considered to be non-native species with limited distribution in New Mexico. Preventing new infestations and eliminating existing infestations is the highest priority. "Class B" weeds are non-native species that are presently limited to portions of the state. They are designated for control in regions where they are not yet widespread. Preventing infestation in these areas is a high priority. In regions where a "Class B" species is already abundant, control is decided at the local level with containment as the primary goal. "Class C" weeds are other non-native weeds found in New Mexico. Many of these are widespread in the state. Long-term programs of suppression and management are a local option, depending upon local threats and the feasibility of management in local areas.

The proposed project sites are known to have populations of saltcedar (*Tamarix spp.*), a Class C weed, musk thistle (*Carduus nutans*) and teasel (*Dipsacus fullonum*), both Class B weeds. Poison hemlock (*Conium maculatum*), another Class B weed, is also be present.

Saltcedar, also called tamarisk, is found along floodplains, riverbanks, stream courses, salt flats, marshes and irrigation ditches. Saltcedar is a fire-adapted species. The high water and salt content of saltcedar foliage make it difficult to burn. Saltcedar sprouts vigorously from the root crown and rhizomes after burning. Saltcedar exhibits increased flowering and seed production after fire. Saltcedar generally survives fire, although very hot fires may prevent sprouting. Prescribed burning alone may not be an effective control method for saltcedar. However, burning followed by herbicide application is effective. Saltcedar stands also consume large amounts of ground water and replacing the saltcedar stands with native species would save water.

Musk thistle is biennial or sometimes a winter annual, which grows up to 6 feet tall. It invades

pasture, range and forest lands along roadsides, waste areas, ditch banks, stream banks and grain fields. It spreads rapidly forming extremely dense stands which crowd out desirable forages and vegetation. (Weeds of the West,1992)

Teasel spreads rapidly in moist sites, especially along irrigation ditches, canals and disturbed sites. It is a stout taprooted biennial which also grows to a height of 6 feet. A rosette is produced the first year, followed by bolting in the second year. The spiny heads can reach lengths of 2 inches (Weeds of the West, 1992).

Poison hemlock occurs on borders of pastures and cropland, gradually invading perennial crops such as alfalfa. It tolerates poorly-drained soils and frequents stream and ditch banks. All plant parts are poisonous including the large white taproot and has been mistaken for parsley. (Weeds of the West, 1992)

Environmental Impacts The Proposed Action would enhance the vegetative species composition, and begin the return to a natural community. Reduction of the existing populations of invasive, nonnative species would release nutrients as well as reducing competition for those nutrients and space by the native species.

The immediate impacts of the proposed prescribed fire would open up areas currently occupied by saltcedar and sacaton. Followup with a herbicide application to the saltcedar by stump painting should reduce root crown sprouts, while a herbicide application to germinating seeds and rosettes of musk thistle, teasel and poison hemlock will allow for native vegetation to become well established. Monitoring of the project site after the burns will be required, so follow up treatments can be made at the appropriate time. If followup monitoring and maintenance are not done, the project area will return to the current situation. All herbicide treatments will be in compliance with the herbicide labels and Appendix 9 of the Roswell RMP and the BLM Vegetation Treatment Environmental Impact Statement, 1991.

The No Action Alternative would result in a "status quo" situation. The stands of saltcedar would increase, invasive musk thistle, teasel and poison hemlock would continue to expand in population size. Native vegetation would decrease, productivity would decline and a monoculture of invasive species would become established. Use of the area would not be conducive to recreationists, such as bird watchers or picnickers, as noxious weeds are not extensively used by wildlife and have a tendency to be irritating to pass through. The sites would also become a "nursery area" or seed source for noxious weeds, spreading up and down the Rio Bonito valley.

Vegetation Management: General vegetation descriptions for the priority areas within the ACEC are described below:

### **Project** Vegetation Type

Upper Rio Bonito Pinyon-juniper on the uplands, grassland invaded by juniper in valley; Rio

Bonito riparian area; invading saltcedar and Russian olive in riparian area;

Kuenzler Hedgehog cactus on certain south-facing slopes

South Mesa Primarily pinyon-juniper and oak brush (especially on north aspect); grassland

on mesa; juniper invading lower slopes and draws; Kuenzler Hedgehog habitat

on certain slopes

West Mesa Bench Grassland on mesa; pinyon-juniper on slopes and invading lower slopes; cholla

invading grasslands on mesa; Kuenzler Hedgehog habitat on certain south-

facing slopes and on the edge of mesa top

West Spur Primarily pinyon-juniper and oak brush on slopes (especially north aspect);

grassland on flat mesas; West Spur Spring riparian area; draws and mesa tops

invaded with juniper

Dairy Pasture Primarily pinyon-juniper on slopes (especially north aspect); juniper invading

lower slopes and draws; Kuenzler Hedgehog cactus on certain slopes

Cemetery Pasture Mixture of pinyon-juniper and grasslands; juniper invading grasslands and

draws

Vegetation types in other areas of the ACEC either closely approximate the above descriptions or are combinations of these descriptions.

Environmental Impacts: Using mechanical techniques, a general change in the cover and composition of juniper would occur in the project areas, moving from a juniper-dominated community to that of a grassland, grass hills and grass savannah type. Understory vegetation (grasses, forbs and shrubs) in the project areas would be temporarily disturbed by actual clearing activities but is expected to recover in a short period of time. Typically, ground cover under juniper trees is very sparse to non-existent due to the allelopathic nature of juniper (volatile oils and resins), and direct competition for sunlight and water. Vegetation would become re-established at each localized clearing in the long-term. It is expected that native plant species that serve as browse and forage for wildlife would increase from the removal of invading juniper. Removal of saltcedar and Russian olive from the riparian area would improve the health of the riparian community in the long-term, allowing native riparian species to become re-established. Saltcedar and Russian olive are most susceptible to mechanical control if coupled with stump treatment with an herbicide during the latter part of the growing season (September-October). Opening up areas within the floodplain of the Rio Bonito may allow noxious weeds (e.g., teasel and thistle) to invade the sites, subsequent chemical treatment may be necessary to control these species.

Standing vegetation would be temporarily removed with prescribed fire. It is expected that understory vegetation would recover in the short-term and recovery would be somewhat dependent on the timing of the fire. Small juniper, cholla and snakeweed would be reduced in density in the grassland vegetation type since they are susceptible to fire damage. Fire-tolerant species would remain and be re-invigorated with fire, such as decadent grasses and shrub species. Forb species would initially respond to fire, increasing in abundance and diversity. Nutrient values of vegetation within the treatment area would be expected to increase due to the addition of organic matter back into the soil. It is expected that a mosaic of burned and unburned vegetation would be created in the project area, and correspondingly, high intensity fire may occur in certain portions of the project area. These sites would require a longer period to recover due to fire intensity.

As with mechanical techniques, chemical control for saltcedar and Russian olive, the most

effective time for treatment to control these species is during the later part of the growing season when food reserves are transported into the root system. Application of an herbicide following cutting during this time would allow the herbicide to be transported to the root system. Hand application of herbicide to cut stumps of saltcedar, Russian olive, and noxious weeds would have minimal effect on adjacent vegetation as the herbicide would be paint-brushed directly onto the target stumps. It is expected that a majority of target species would succumb to the herbicide but subsequent treatment may be necessary. Chemical control of noxious weeds may be required following mechanical treatment within the floodplain of the Rio Bonito. Hand spraying noxious weeds may kill some adjacent vegetation while treating target species.

Under the No Action Alternative there would be no impacts to vegetation within the ACEC.

Terrestrial and Aquatic Wildlife Habitat: Fort Stanton provides diverse habitats for approximately 151 species of birds, 38 species of mammals and 9 species of fish.

Several bird species associated with pinyon-juniper woodlands are the common flicker, ladderbacked woodpecker, acorn woodpecker, pinyon jay, scrub jay, mountain chickadee, common bushtit, plain titmouse, white-breasted nuthatch, blue-gray gnatcatcher, gray vireo, rock wren, and Montezuma quail.

The blue grama grassland habitat supports such species as scaled quail, roadrunner, western meadowlark, Northern harrier, brown-headed cowbird, vesper sparrow, lark bunting, rufouscrowned sparrow, and horned lark.

Several species of birds occur in the riparian community or near other sources of water. Representative species are acorn woodpecker, killdeer, mourning dove, mallard, bufflehead, belted kingfisher, blue grosbeak, lesser goldfinch, yellow-rumped warbler, Northern waterthrush, and yellow-breasted chat. In addition, the bald eagle winters throughout the area, and the Rio Bonito drainage is an important wintering area.

The diversity of small mammals provide for an excellent prey base for carnivores such as the coyote, gray fox, bobcat, raccoon, badger, striped skunk, long-tailed weasel, and occasionally black bear and mountain lion.

Blue grama grassland mammal species include the spotted ground squirrel, pocket gopher, silky pocket mouse, Ord's kangaroo rat, bannertail kangaroo rat, northern grasshopper mouse, southern plains woodrat, and the pronghorn antelope.

Other mammals use the pinyon-juniper woodland habitat to some extent. Mule deer occur throughout the Fort Stanton area. During winter, some deer migrate from the higher elevations of the Sierra Blanca Mountains to the Fort Stanton area. Since 1990, a number of Rocky Mountain elk have used the area on a year-long basis.

Beavers use the riparian habitat to the exclusion of upland habitat. Over the past years, beavers have built dams and lodges on the Rio Bonito. Annual floods that wash out the dams seem to be the most serious problem for beavers. Beavers may also leave the area when water levels drop.

Fish species found in the Rio Bonito are the Rio Grande sucker, brook trout, rainbow trout, cutthroat trout, fathead minnow, white sucker, Rio Grande chub, longnose dace, and mosquitofish.

In addition, an extensive list of aquatic insects and herptiles can be found in the Fort Stanton Habitat Management Plan on file at the Roswell Field Office.

Environmental Impacts: Using mechanical techniques there would be a temporary displacement of terrestrial wildlife during the actual clearing activities due to human activity and noise levels. Impacts to wildlife dependent upon juniper would be minimal as there are other areas of juniper that would not be cleared. Wildlife species would return to the project areas in a short period of time. A general shift in wildlife would be expected in the project areas, with species more associated with grassland and riparian habitat increasing in abundance (primarily grassland birds and small mammals). Clearing activities in the riparian area may cause displacement of nesting birds if conducted during the breeding season beginning in the spring. Big game species may benefit in the long term from the potential availability of other browse species that could become re-established, such as mountain mahogany and oak. Pronghorn antelope habitat would increase in certain project areas. In the riparian area, certain reaches of the Rio Bonito would be more exposed to sunlight since saltcedar and Russian olive grow along the banks. A slight increase in water temperature would be expected from the removal of stream shading. This potential impact would be minimized during the fall and winter months. Wildlife use of the riparian area would also be minimal during this time of the year, clearing activities would have less impacts on wildlife. It is expected that native riparian and bottomland vegetation would recover and provide shading in the long term. Some sedimentation of the stream may occur if heavy runoff from rainfall were to occur following clearing, before groundcover becomes reestablished. This may negatively impact fish and aquatic invertebrates in the short term. The possibility of this event occurring is lessened during the fall, winter and early spring months, prior to the rainy season beginning in July.

Burning grasslands on the mesa tops and bottomland along the Rio Bonito would temporarily displace wildlife species, the magnitude of disturbance would depend on the time of the fire. Ground- and shrub-nesting birds would be negatively affected if prescribed fires were conducted during the nesting season beginning in the spring. Most terrestrial wildlife species would be able to avoid the fire either by leaving the area or seeking cover (e.g., burrows and dens). Potential direct loss of local terrestrial wildlife would be higher during their more active periods during the spring and summer. months. In general, wildlife would return to the area following treatment, with an increase in those species associated with more of a grassland aspect. The treated areas may see an increase of wildlife use due to the release of forbs typically following a fire, and other succulent vegetation, including new shoots from grasses and shrubs from the removal of old and decadent standing vegetation. Some sedimentation of the stream may occur if heavy runoff from rainfall were to occur following a prescribed fire in the bottomland.

Chemical treatment by application of herbicides to cut stumps would have no impact to wildlife and aquatic species. Hand spraying herbicides to follow-up on mechanical treatments (reemerging shoots from stumps or noxious weed control) would be limited to the target plants and a small area around the plant (drift and drip). Because of the ability to direct spray and selectively treat target plants, aquatic habitat would not be negatively affected.

Under the No Action alternative there would be no impacts to wildlife and wildlife habitat.

Threatened and Endangered Species: Kuenzler's hedgehog cactus is listed as an endangered species by the federal government and the State of New Mexico. The ACEC supports the largest known population of the cactus in New Mexico. It is found in the west one-half of the ACEC (about 14,000 acres). Prime habitat is on open southeast-facing aspects on the upper third of 20 percent slopes in the PJ zone at 6,600 to 6,900 feet elevation. Healthy populations will also occur on level ridge tops, on northeast, east, south and west aspects and on mid and lower slopes of 5 to 25 percent slope, and even on the lower slopes below a band of PJ or oak. In other words, all slopes can be considered potential Kuenzler cactus habitat. The highest priority sites for protection are the ten largest cactus populations identified in an extensive survey conducted in 1991.

Environmental Impacts: Kuenzler's hedgehog cactus would not be impacted by mechanical clearing as occupied sites would be identified and selective clearing would occur in those areas. Flowering cactus are most obvious beginning in the month of May through June, avoidance would be easiest during this time period. An intensive survey of all potential habitat at the ACEC was completed in 1991. Maps of all known locations are available for use in planning site-specific clearing activities. It is expected that a few cacti not previously located in the project area may inadvertently be trampled during the clearing operation. In the long-term, cactus habitat may improve from the increase in grass cover, important in thermal protection of the cactus. Prescribed fire may impact individual cactus species not previously located on the mesa tops, but most of the edges of mesas would be left unburned as to avoid the potential for destroying cacti. There would be no affect from chemical treatment as this type of treatment is utilized only in the riparian area where there are no cacti.

Under the No Action alternative there would be no impacts to Kuenzler's hedgehog cactus.

Cultural Resources: Human occupation of the Fort Stanton area extends back in time to about 9,000 years before the present. This date is based on isolated paleoindian projectile points and not in association with paleoindian archeological sites. The Archaic time period is represented by a number of sites as is the Formative, also called the Ceramic time period. The variety of prehistoric sites ranges from open sites to rock shelter, cave, architectural and petroglyph. Site density is high along major drainages such as the Rio Bonito.

In the first half of the nineteenth century Hispanic peoples began settling in the area. By 1855, Fort Stanton was built to provide protection for the local Anglo and Hispanic population from the Mescalero Apaches. Besides Fort Stanton proper, there are known historic sites dating to the same time frame and associated with Fort Stanton.

There have been several large cultural inventory surveys on the Fort Stanton Reservation. One of these was undertaken prior to the construction of the Sierra Blanca Regional Airport. Other large surveys have focused on the Rio Bonito drainage. Smaller surveys have occurred prior to small scale surface disturbing projects such as water line and fence construction.

In addition to cultural surveys, excavations have been permitted as part of archeological field schools, for research and ahead of construction projects.

Environmental Impacts: Depending on the techniques implemented for vegetation treatment, identification and protection of cultural resources will vary. Wherever there will be more than minimal surface disturbance, cultural inventory and avoidance will be required.

The No Action alternative would have no impacts on cultural resources in the area.

Cave/Karst Resources: The Fort Stanton ACEC has a number of significant caves or karst features.

The management goal of the Roswell RMP is to protect the natural and scenic values of caves while allowing for limited recreational and educational use of the caves. Under the 1997 Roswell RMP, surface disturbance will not be allowed within 200 meters of known cave entrances passages or aspects of significant caves or significant karst features.

Environmental Impacts: The Proposed Action could effect cave/karst if heavy equipment were to pass over the cave/karst areas where significant caves are known to exist or there is high potential for cave/karst resources. If, during or after treatment, a cave or karst feature is located, an inventory would be initiated to determine the significance of the cave resource. Residual impacts of surface run off and silting should not have a significantly affect on the cave/karst resources.

The No Action alternative would have little short-term impacts on cave/karst resources in the area.

Outdoor Recreation: The Proposed Actions are located within areas of high potential for recreation activities. Activity plans will be developed for equestrian, mountain bike and foot trails within the area. Presently there are recreation developments at the Fort Stanton Cave/campground, and the Lower Rio Bonito recreation area. Roads are currently used as ways of travel for equestrian/Mountain Bike/foot travel.

Environmental Impacts: The Proposed Action would, in the long term, benefit recreation activities by opening vistas, reducing fire risk, and restoring native vegetation to the area. Impacts of the Proposed Action on casual recreation use would be short-term, occurring when the projects are being carried out. Once the tree material is removed by chipping or burning there will be no noticeable impacts.

The No Action alternative would have little short-term impacts on recreation use of the area.

Visual Resources: The Visual Resources within the proposed area are Class II and III. The Class II rating means that any changes in any basic elements (form, line, color, texture) caused by a management activity should not be evident in the landscape. A contrast may be seen but should not attract attention. The Class III rating means the contrasts to the basic elements caused by the management activity may be evident and begin to attract attention in the landscape. The changes, however would remain subordinate to the existing landscape. The Proposed Action should result in short term visual impacts to the casual observer.

Environmental Impacts: There should be very little visual impacts from cutting/chipping trees. There will be some short term visual aspects of if the trees are cut, piled and then burned. The impacts to cutting and burning should not be noticeable after a two year period. There will be minimal visual impacts to using rubber tired or tracked tractors. Controlled burns on large acreages

would result in a residual visual impact for one growing season. Bulldozers pushing trees out of the ground with only minor surface disturbance would result in minimal visual impacts. Following the BMPs would result in short-term, minimal impacts.

The No Action alternative would cause no impacts on visual resources.

Area of Critical Environmental Concern: Established by the 1997 Roswell Resource Management Plan (RMP), the Fort Stanton ACEC comprises 24,630 acres of public land. RMP also established a management goal of protecting the biological, archaeological, and scenic qualities of the area while providing for quality recreation opportunity. Among the management prescriptions outlined in the RMP are:

- Treating saltcedar along the Rio Bonito and Salado Creek with either prescribed fire, chainsaws, or chemicals.
- Prescribed burns will be conducted in selected pinyon/juniper, riparian, and grassland plant communities to improve wildlife habitat and reduce fuels.
- Watershed improvements such as streambank stabilization, native riparian plantings, saltcedar control, and control of invasive species.

The individual resources present within the ACEC have been listed previously in this document. Rather than repeating the previous text here, the reader is asked to review the previous topics within the document.

Environmental Impacts: The environmental impacts of the proposed action have been analyzed within this document under the preceding topics. The proposed action would result in restoring the existing viewshed to a more historical condition; enhancing water quality and quantity in the Rio Bonito and Salado Creek; reducing species such as juniper, saltcedar, and noxious weeds; and reducing the buildup of hazardous fuels. See the Cumulative Impacts section for a further discussion of impacts to the ACEC.

The No Action alternative would cause no impacts in the ACEC.

### IV. CUMULATIVE IMPACTS

After recovery of treated areas, establishment of herbaceous cover and planting of willows and cottonwoods in riparian areas, the impacts would be expected to accumulate on the positive, as evidenced by expected improvement in water quality, recharge of ground waters, enhanced plant community vigor, and the elimination or reduction of invasive, non-native plant species. This, in turn, would reduce the amount of and arrangement fuels in area. Therefore, the threats of wildfire to BLM lands, private property, and state lands would also be reduced.

The No Action alternative maintains the status quo. The No Action alternative avoids short-term impacts while its long term impacts would continue. The threat of fire to BLM lands and private property would remain high or increase. Natural fuel levels would continue to increase resulting in an even more serious fire hazard than is now present. Exotic, invader and introduced species, which would continue to out-compete native species, would continue to establish themselves, expand the area they

occupy, and supplant native species. The condition and diversity of riparian areas and the watersheds would continue to decline. Water and nutrient cycles would remain at a reduced level, and the plant community vigor would continue to decline.

### V. MITIGATION MEASURES

See the Proposed Action for mitigation measures to impacts.

### VI. RESIDUAL IMPACTS

There is a possibility of trace of amounts of the chemicals remaining in the area after the use of herbicides. These impacts should be short term.

### VII. PERSONS AND AGENCIES CONSULTED

Bureau of Land Management Roswell Field Office Staff

Tim Kreager

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Bill Murry

Dan Baggao

Rand French

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Paul Happel

Clark Taylor

Pat Flanary

Helen Miller

Jim Schroeder

Irene Salas

Jim Desmond

Jerry Dutchover

### VIII. REFERENCES

Bureau of Land Management. 1997. Roswell approved resource management plan and record of decision. BLM-NM-PT 98-003-1610. 71 pp.

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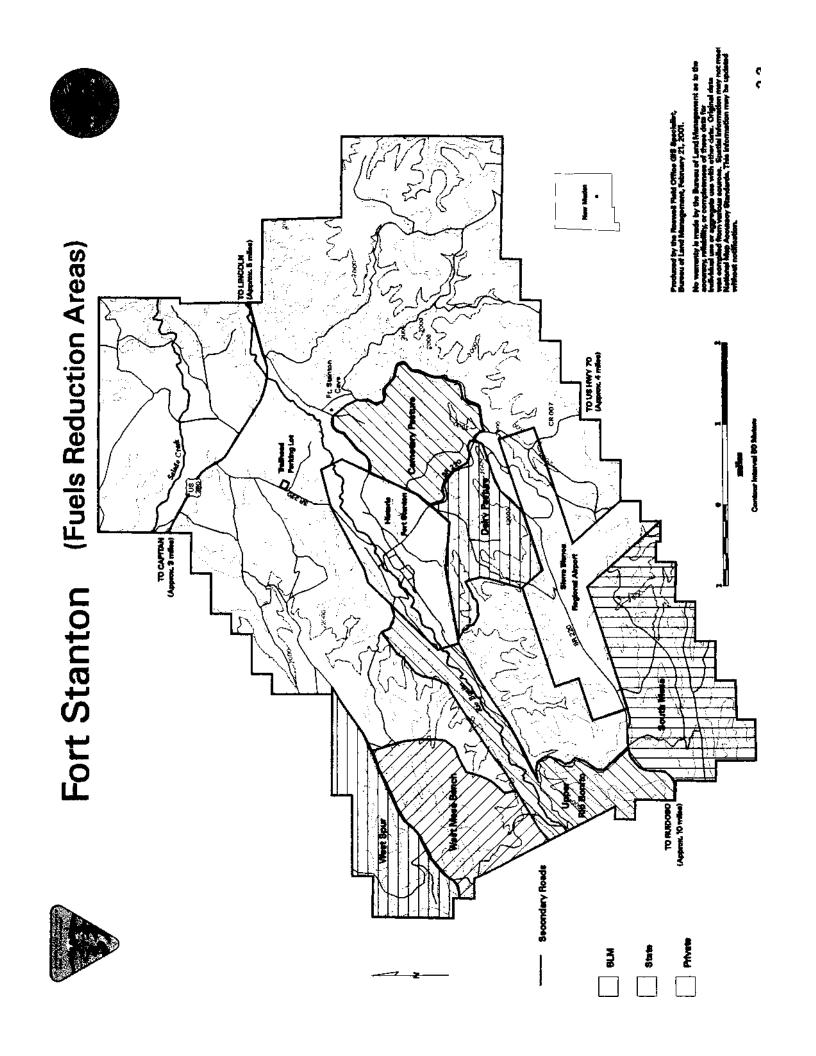
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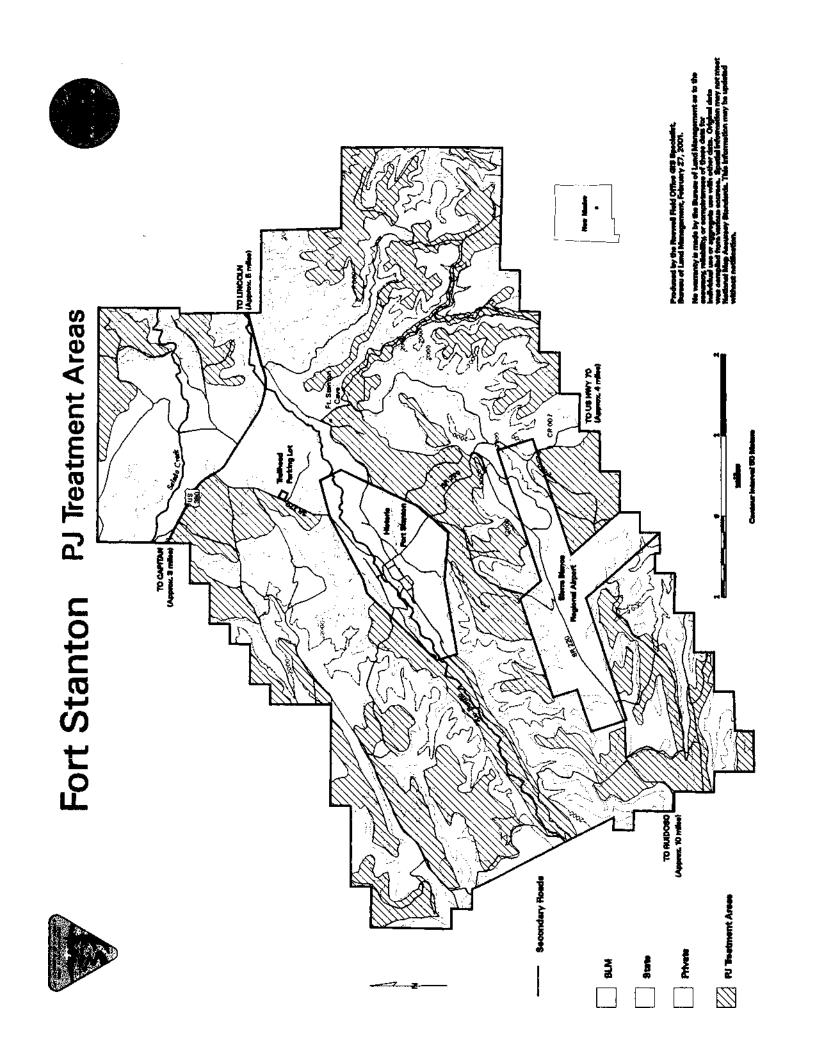
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- USDA Soil Conservation Service. 1983. Soil survey of Lincoln County Area, New Mexico. 217 pp.

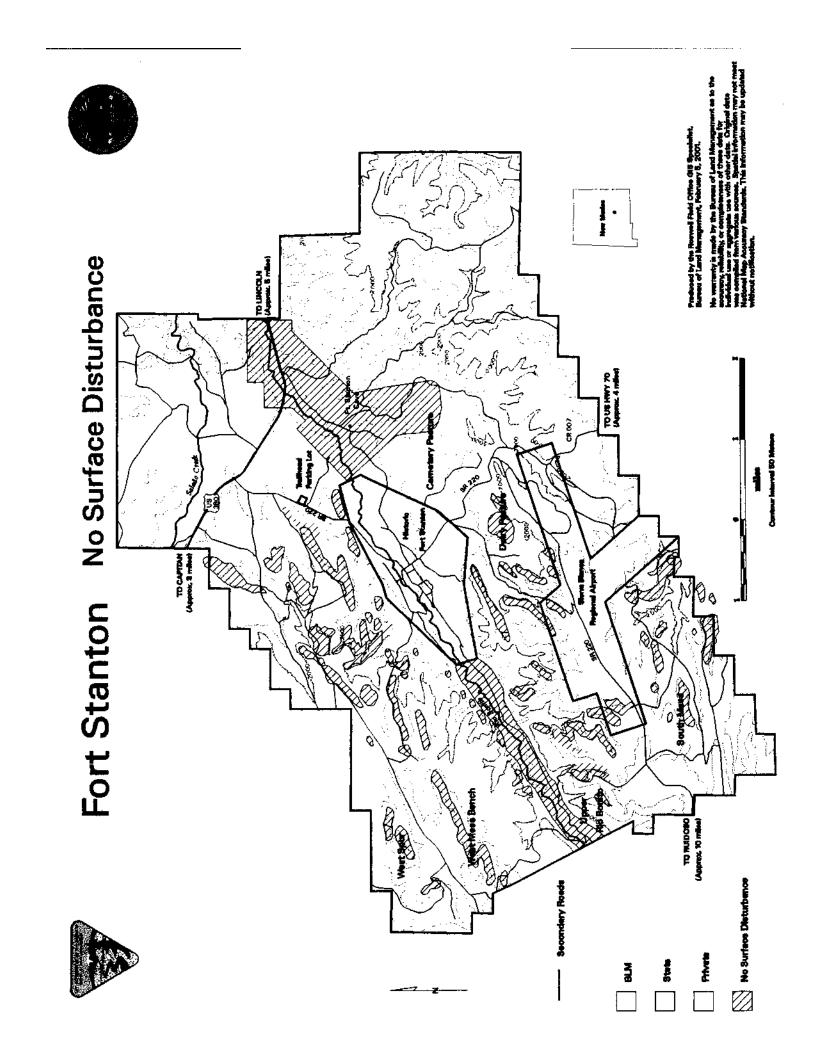
### IX. APPENDICES

- Appendix A Appendix 9 of the 1997 Roswell Resource Management Plan, Treating Vegetation with Herbicides
- Appendix B Environmental Assessment No. NM-066-98-044, Noxious Weed Control
- Appendix C List of Approved Herbicides (BLM Pesticide Use Proposal) and list of pesticides
- Appendix D Executive Order No. 13112, Invasive Species
- Appendix E State of New Mexico, Noxious Weed Management Act 1998
- Appendix F Memorandum of Understanding between BLM; US Forest Service; Natural Resources Conservation Service; the conservancy districts of Lincoln County; Lincoln County; New Mexico Highway Department; and New Mexico State Land Office regarding the management of noxious weeds on public and private lands in Lincoln County.

Appendix G - Maps







### FINDING OF NO SIGNIFICANT IMPACT/RATIONALE

<u>FINDING OF NO SIGNIFICANT IMPACT</u>: I have reviewed this environmental assessment including the explanation and resolution of any potentially significant environmental impacts. I have determined the proposed action will not have significant impacts on the human environment and that preparation of an Environmental Impact Statement (EIS) is not required.

<u>Rational for Recommendations</u>: The proposed action would not result in any undue or unnecessary environmental degradation. The proposed action will be in compliance with the Roswell Resource Management Plan and Record of Decision (October, 1997)

T. R. Kreager,

Assistant Field Office Manager - Resources

### **DECISION RECORD**

<u>Decision</u>: I have reviewed this proposed action, including the environmental impacts and have determined that the proposed project is in conformance with the approved land use plan. Therefore, no further environmental analysis is required. It is my decision to implement the hazardous fuels reduction project in the Fort Stanton Area of Critical Environmental Concern. Any comments made to this proposed treatment were considered and any necessary changes have been incorporated into the environmental assessment.

Any person who is adversely affected by a final decision of the authorized officer may file a written appeal to the Final Decision for the purpose of a hearing before an administrative law judge under 43 CFR 4.470. A period of 30 days after the decision becomes final is provided in which to file an appeal and a petition for stay of the decision in this office.

T. R. Kreager,

Assistant Field Office Manager - Resources

5/11/0/ Date